FIG.1

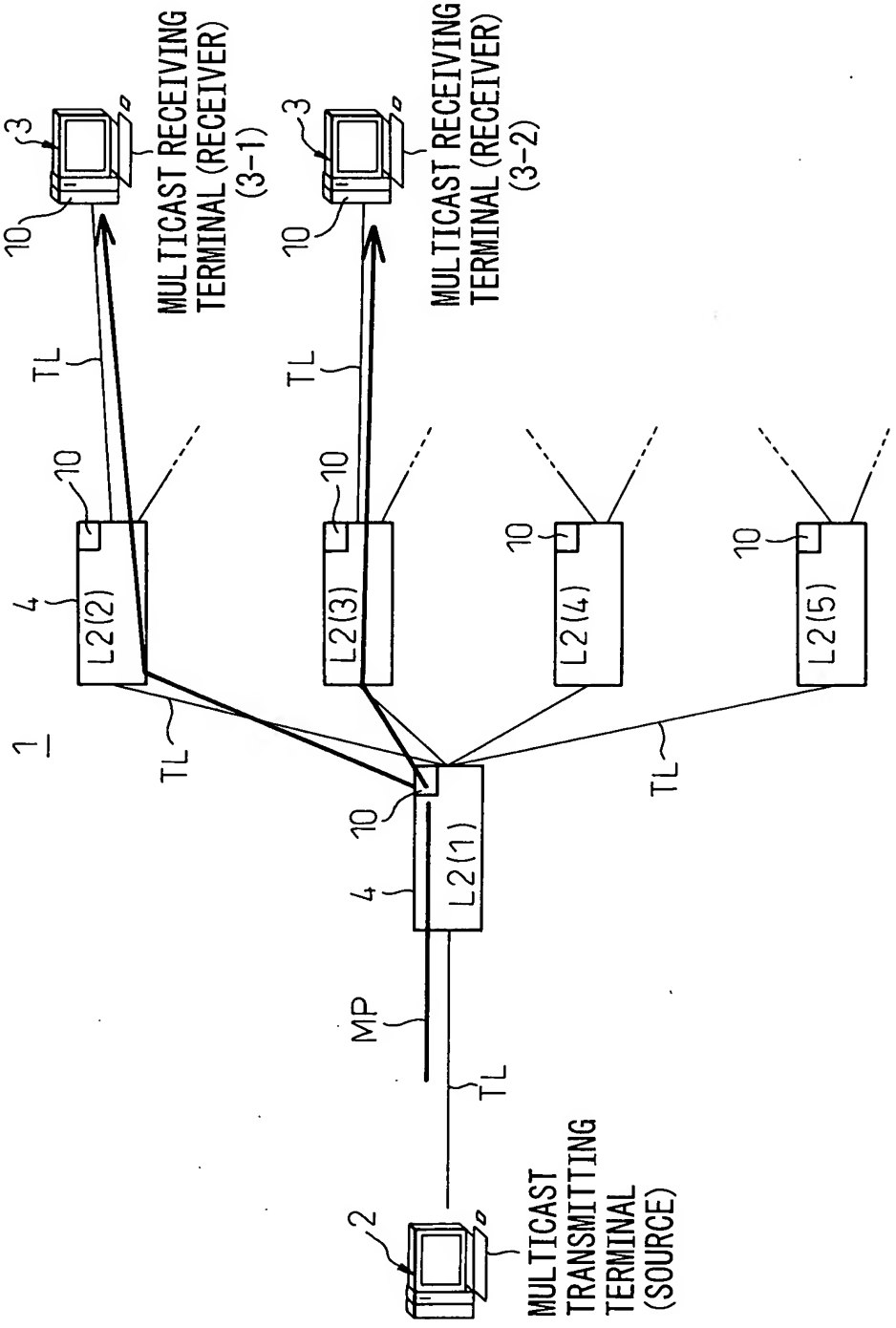

1
2
3
4
10
TL
MP
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)
MULTICAST TRANSMITTING TERMINAL (SOURCE)

FIG.2

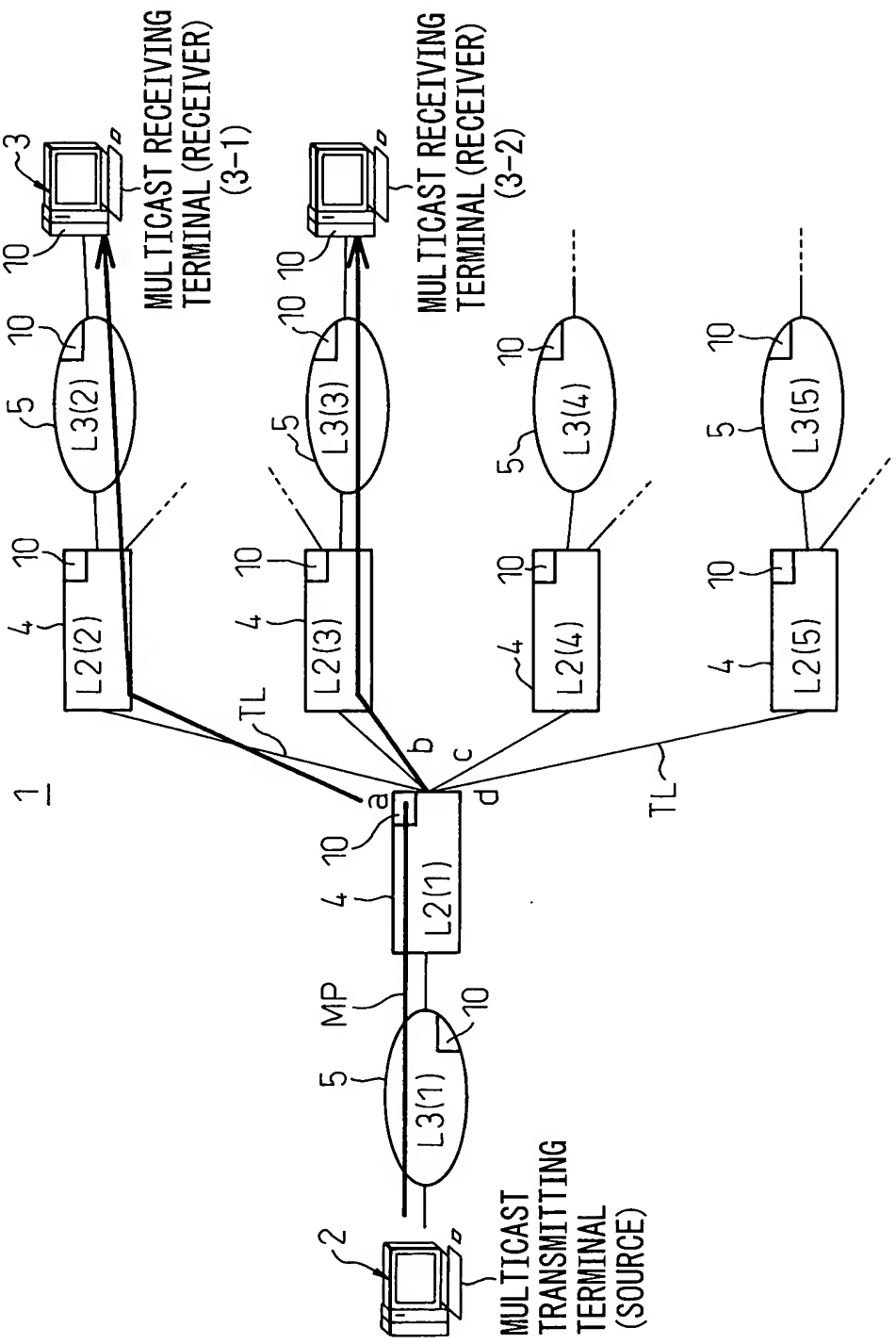

1
2
3
4
5
10
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
L3(1)
L3(2)
L3(3)
L3(4)
L3(5)
MP
TL
a
b
c
d
MULTICAST TRANSMITTING TERMINAL (SOURCE)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)

FIG. 3

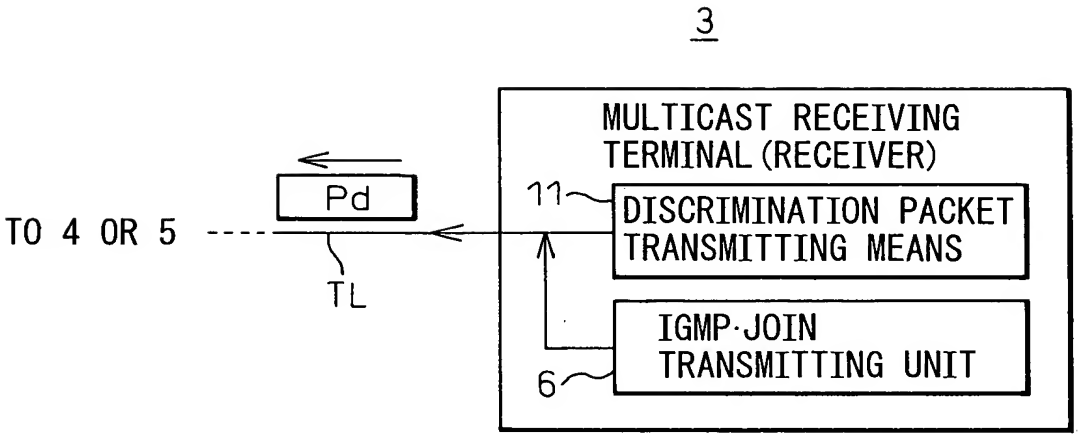

3
MULTICAST RECEIVING TERMINAL (RECEIVER)
11
DISCRIMINATION PACKET TRANSMITTING MEANS
IGMP·JOIN TRANSMITTING UNIT
6
Pd
TO 4 OR 5
TL

FIG. 4

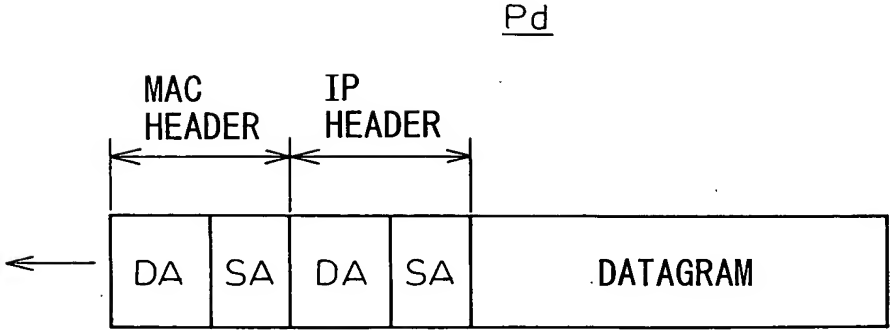

Pd
MAC HEADER
IP HEADER
DA
SA
DA
SA
DATAGRAM

FIG.5

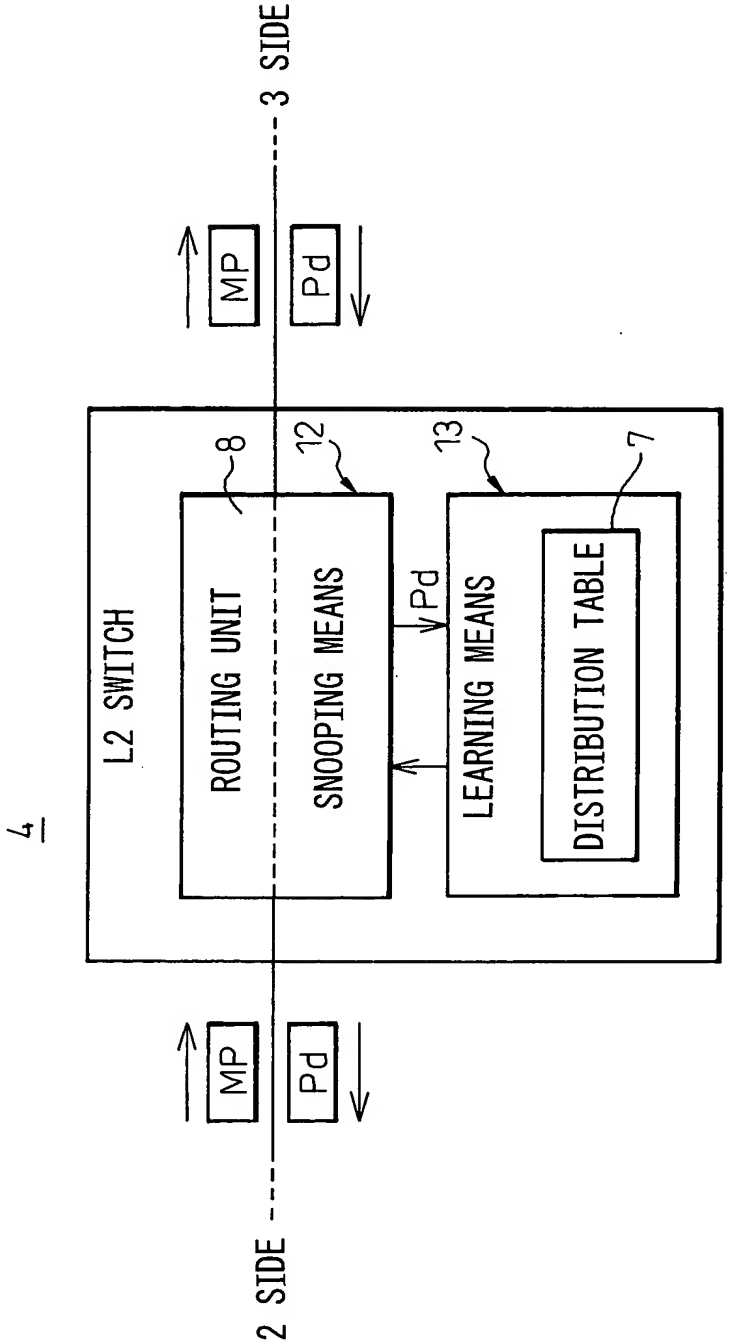

3 SIDE
MP
Pd
4
L2 SWITCH
8
ROUTING UNIT
12
SNOOPING MEANS
Pd
13
LEARNING MEANS
7
DISTRIBUTION TABLE
MP
Pd
2 SIDE

FIG.6

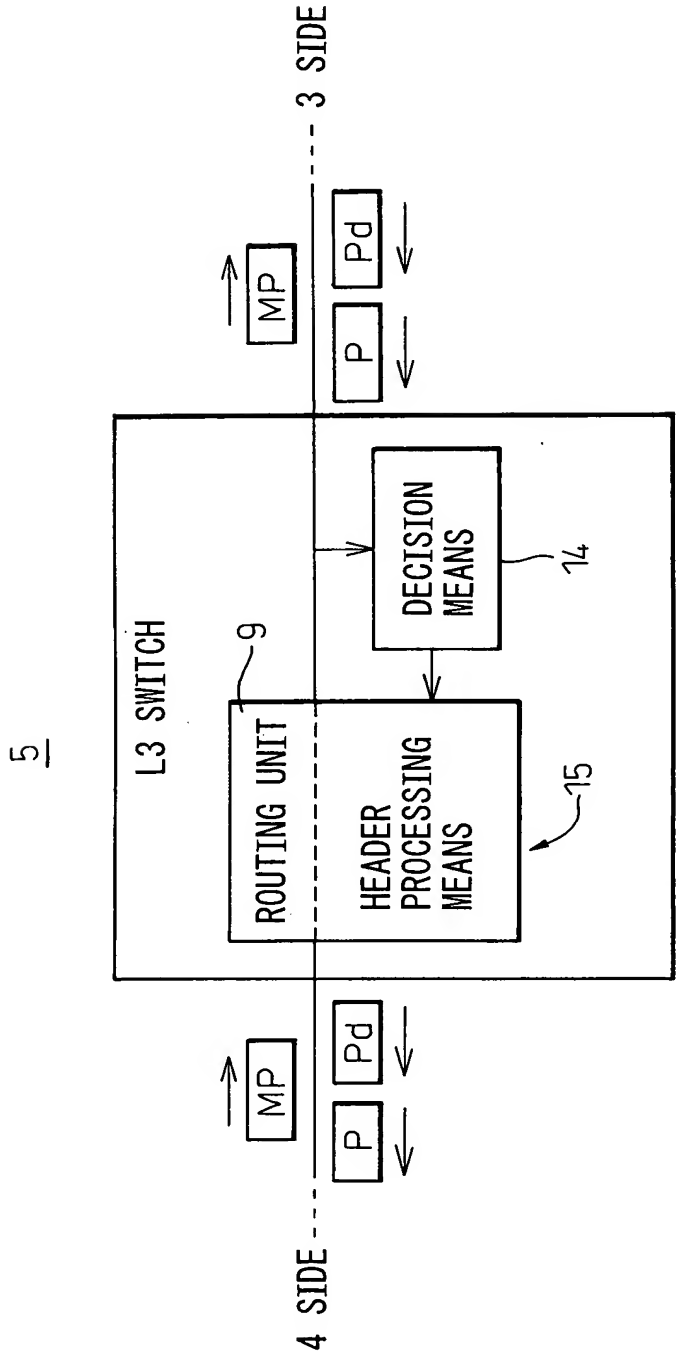

5
L3 SWITCH
ROUTING UNIT
9
DECISION MEANS
14
HEADER PROCESSING MEANS
15
3 SIDE
4 SIDE
MP
P
Pd
MP
P
Pd

FIG.7

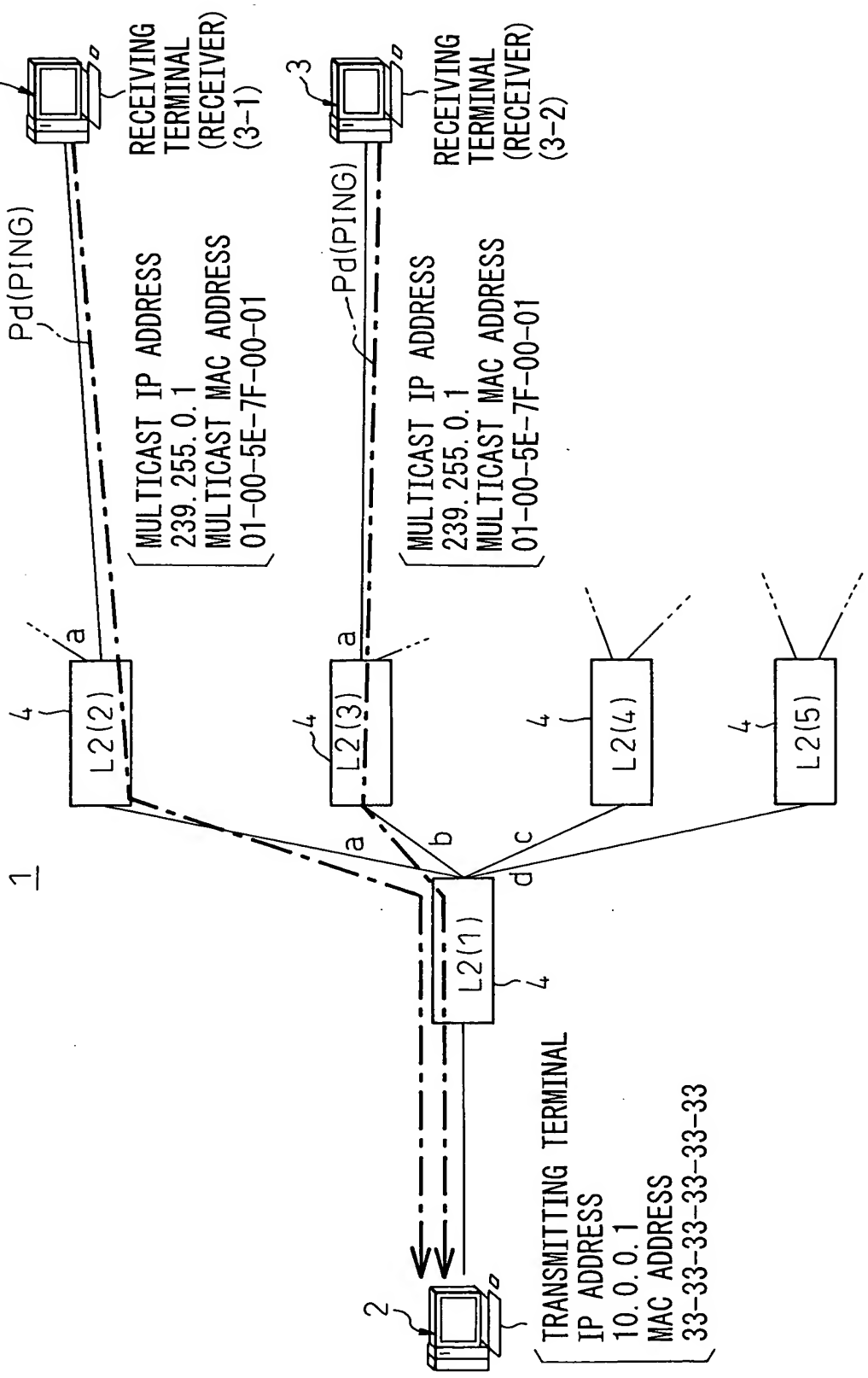

1
2
3
3
3
4
4
4
4
4
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
a
a
a
b
c
d
Pd(PING)
Pd(PING)
RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST IP ADDRESS 239.255.0.1
MULTICAST MAC ADDRESS 01-00-5E-7F-00-01
RECEIVING TERMINAL (RECEIVER) (3-2)
MULTICAST IP ADDRESS 239.255.0.1
MULTICAST MAC ADDRESS 01-00-5E-7F-00-01
TRANSMITTING TERMINAL
IP ADDRESS 10.0.0.1
MAC ADDRESS 33-33-33-33-33-33

FIG. 8

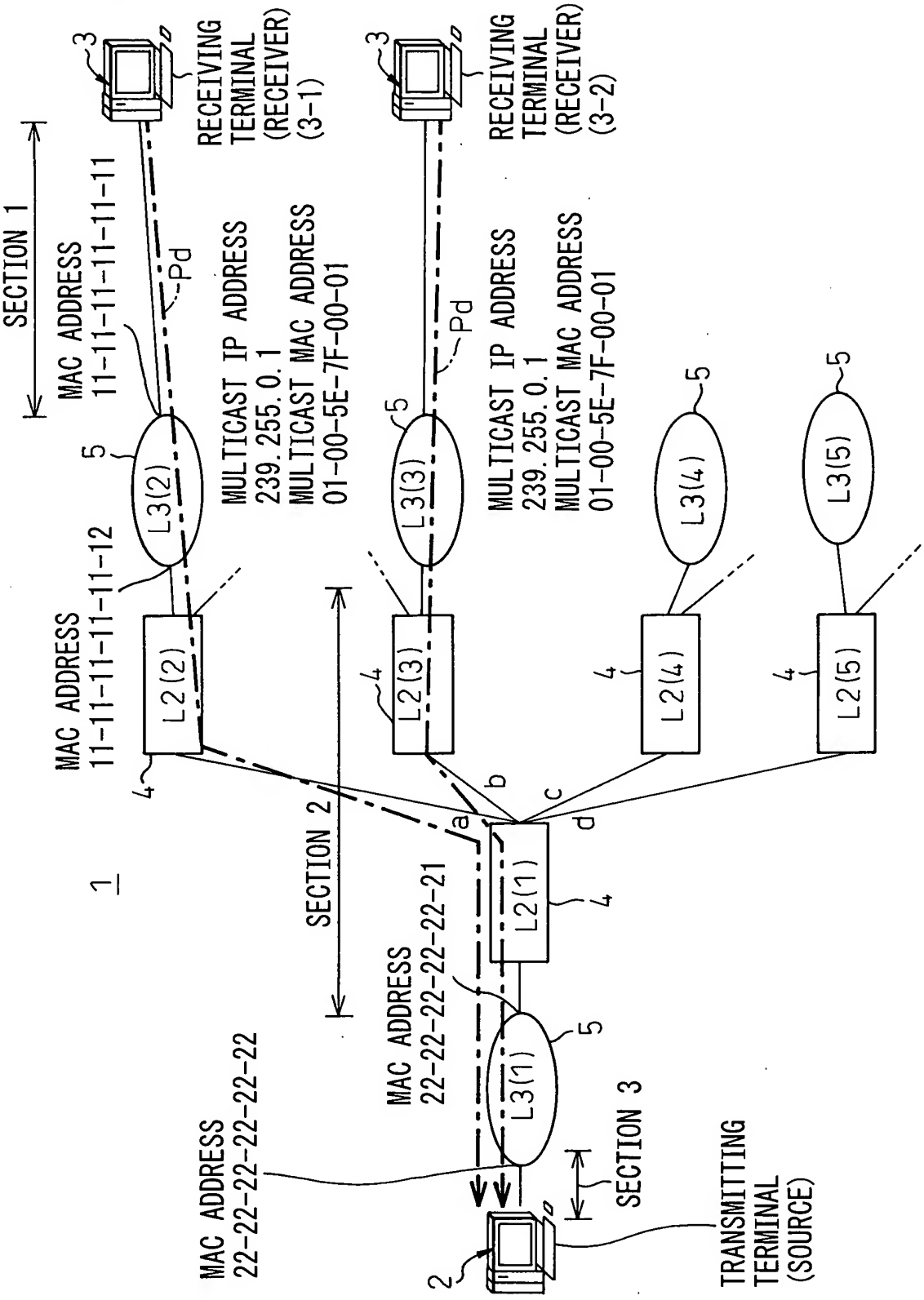

1
SECTION 1
SECTION 2
SECTION 3
MAC ADDRESS
11-11-11-11-11-12
MAC ADDRESS
11-11-11-11-11-11
MULTICAST IP ADDRESS
239.255.0.1
MULTICAST MAC ADDRESS
01-00-5E-7F-00-01
RECEIVING TERMINAL (RECEIVER) (3-1)
RECEIVING TERMINAL (RECEIVER) (3-2)
MAC ADDRESS
22-22-22-22-22-21
MAC ADDRESS
22-22-22-22-22-22
TRANSMITTING TERMINAL (SOURCE)
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
L3(1)
L3(2)
L3(3)
L3(4)
L3(5)
Pd
a
b
c
d

FIG.9

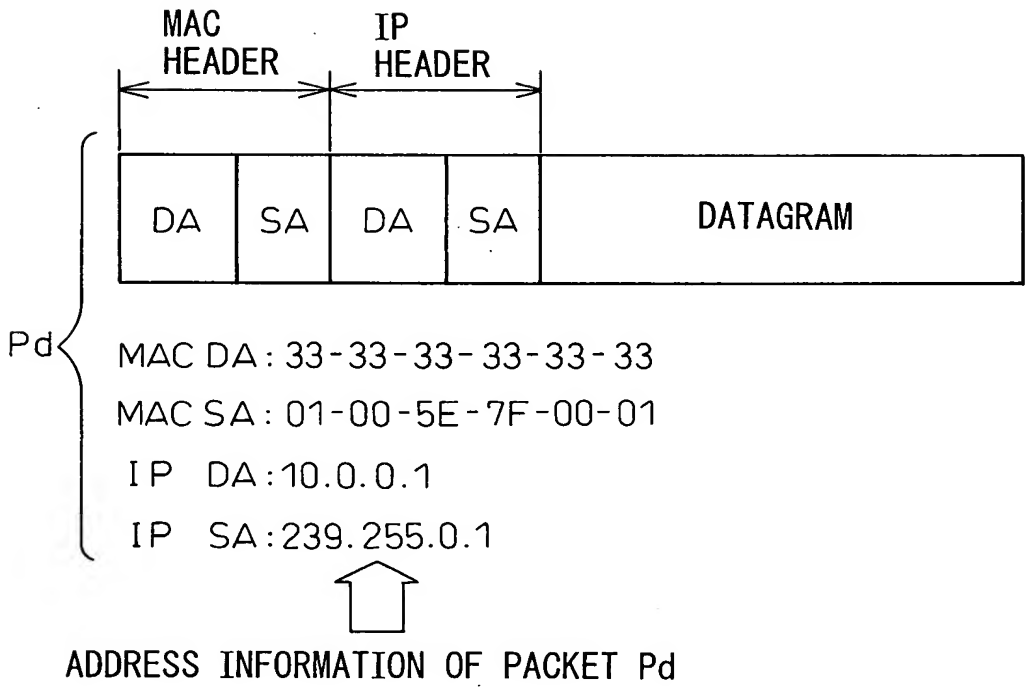

MAC HEADER
IP HEADER
DA
SA
DA
SA
DATAGRAM
Pd
MAC DA: 33-33-33-33-33-33
MAC SA: 01-00-5E-7F-00-01
IP DA: 10.0.0.1
IP SA: 239.255.0.1
ADDRESS INFORMATION OF PACKET Pd

FIG.10

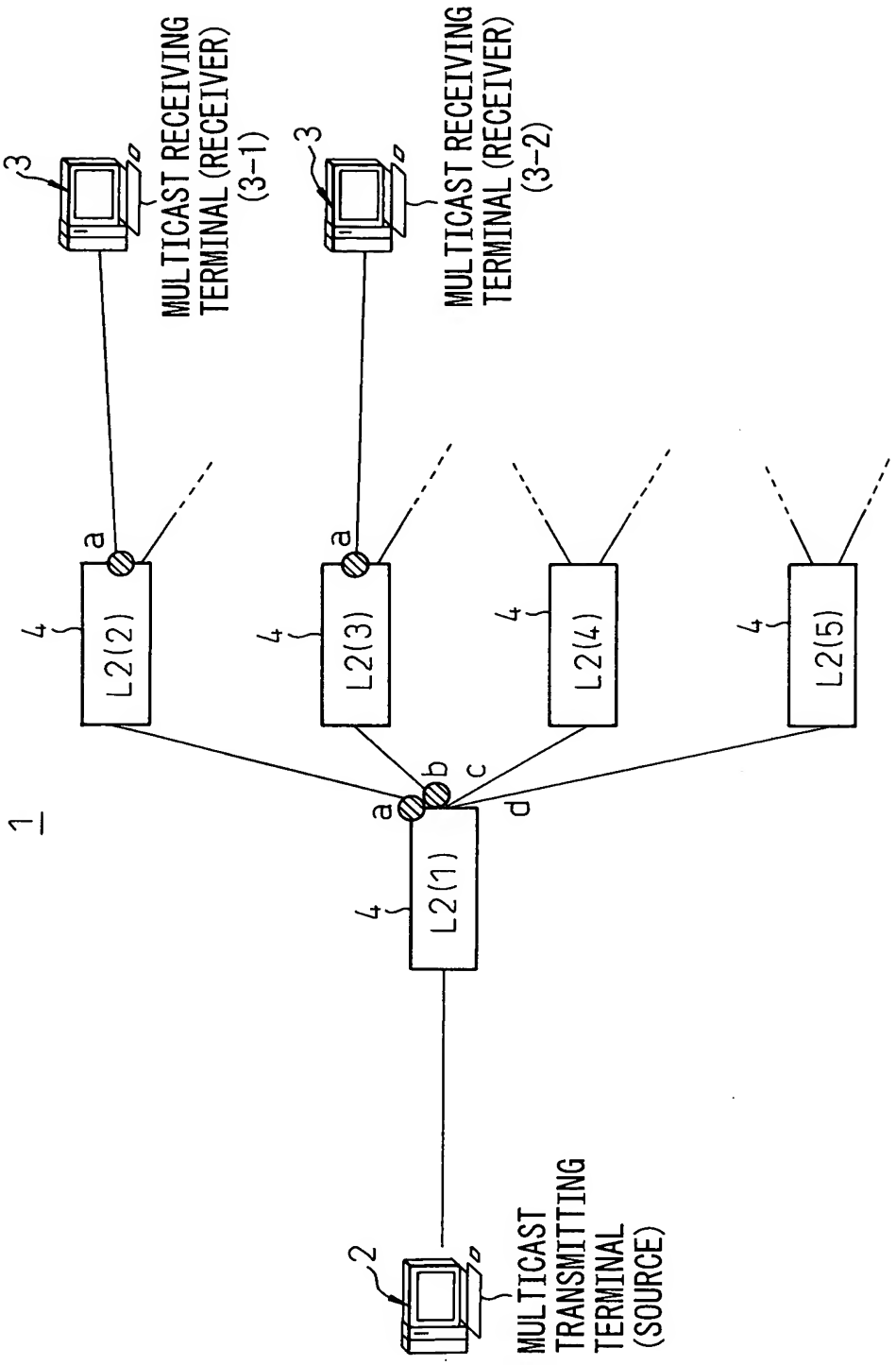

1
2
MULTICAST TRANSMITTING TERMINAL (SOURCE)
3
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
3
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)
4
L2(1)
4
L2(2)
4
L2(3)
4
L2(4)
4
L2(5)
a
b
c
d
a
a

FIG.11

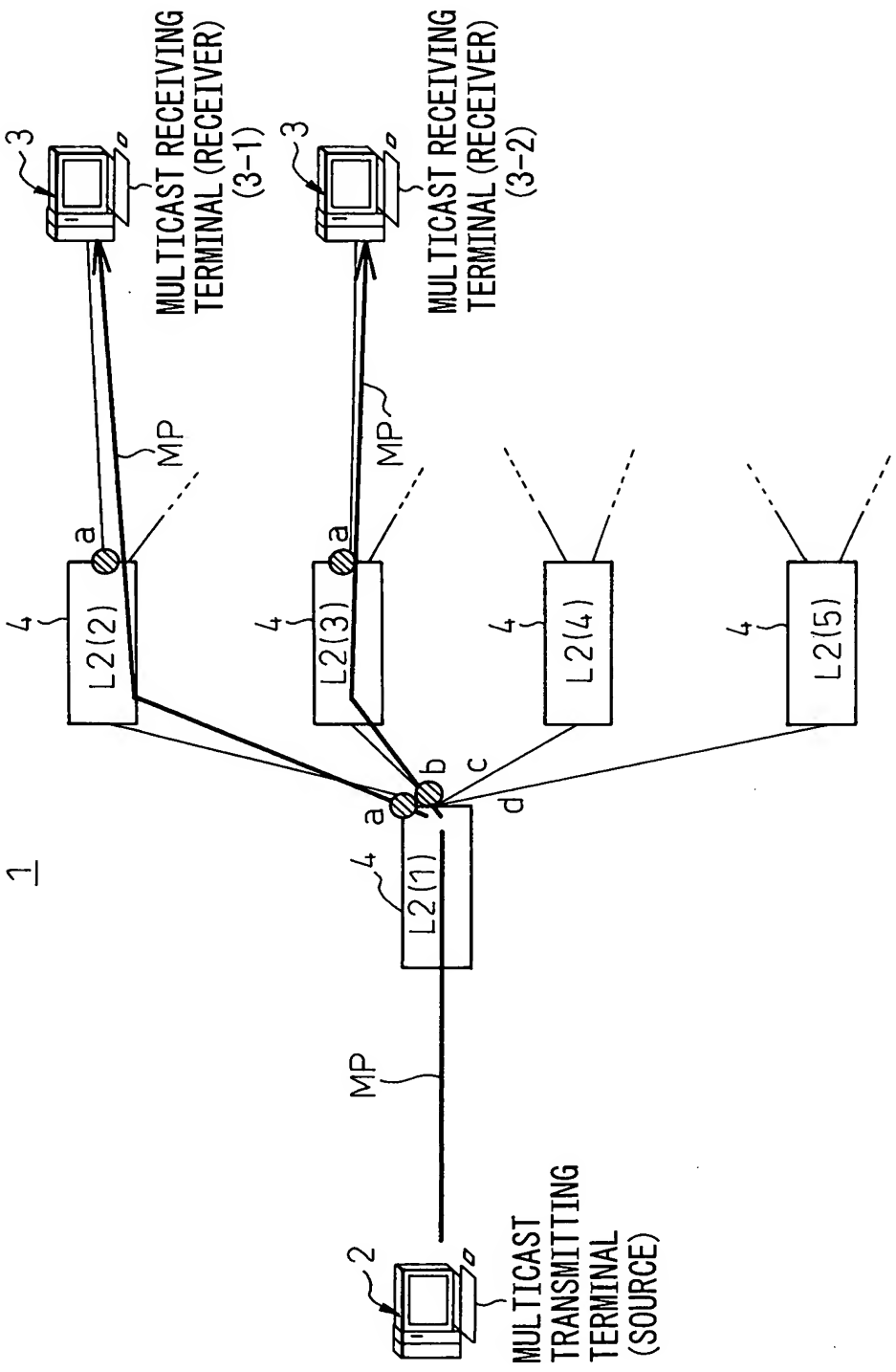

1
2
3
4
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
MP
a
b
c
d
MULTICAST TRANSMITTING TERMINAL (SOURCE)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)

FIG.12

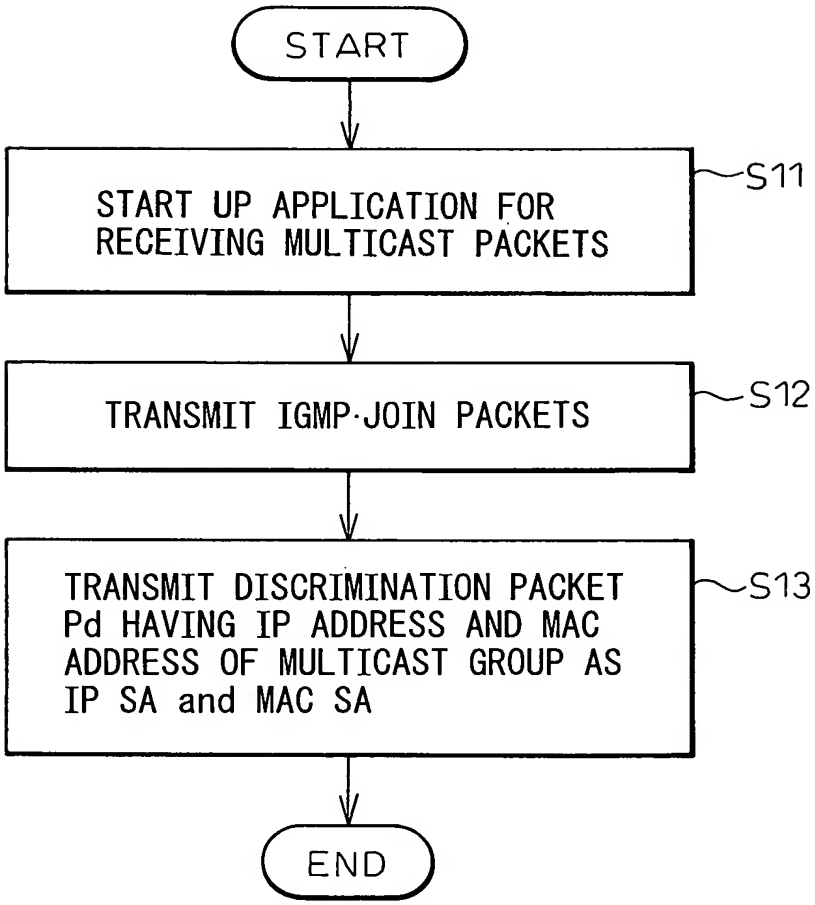
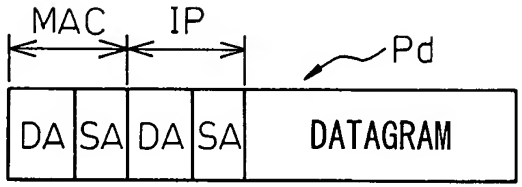

START
START UP APPLICATION FOR RECEIVING MULTICAST PACKETS
S11
TRANSMIT IGMP·JOIN PACKETS
S12
TRANSMIT DISCRIMINATION PACKET Pd HAVING IP ADDRESS AND MAC ADDRESS OF MULTICAST GROUP AS IP SA and MAC SA
S13
END

FIG.13(a)




SECTION 1
MAC DA : 11-11-11-11-11-11
MAC SA : 01-00-5E-7F-00-01
IP DA : 10.0.0.1
IP SA : 239.255.0.1

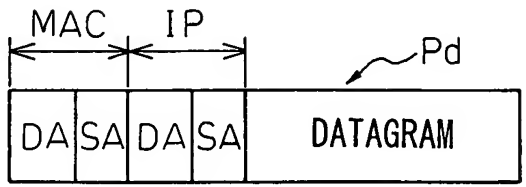
↓

SECTION 2
MAC DA : 22-22-22-22-22-21
MAC SA : 11-11-11-11-11-12
IP DA : 10.0.0.1
IP SA : 239.255.0.1

↓

SECTION 3
MAC DA : 33-33-33-33-33-33
MAC SA : 22-22-22-22-22-22
IP DA : 10.0.0.1
IP SA : 239.255.0.1

FIG.13(b)




MAC DA : 11-11-11-11-11-11
MAC SA : 01-00-5E-7F-00-01
IP DA : 10.0.0.1
IP SA : 239.255.0.1

↓

MAC DA : 22-22-22-22-22-21
MAC SA : 01-00-5E-7F-00-01
IP DA : 10.0.0.1
IP SA : 239.255.0.1

↓

MAC DA : 33-33-33-33-33-33
MAC SA : 01-00-5E-7F-00-01
IP DA : 10.0.0.1
IP SA : 239.255.0.1

FIG.14

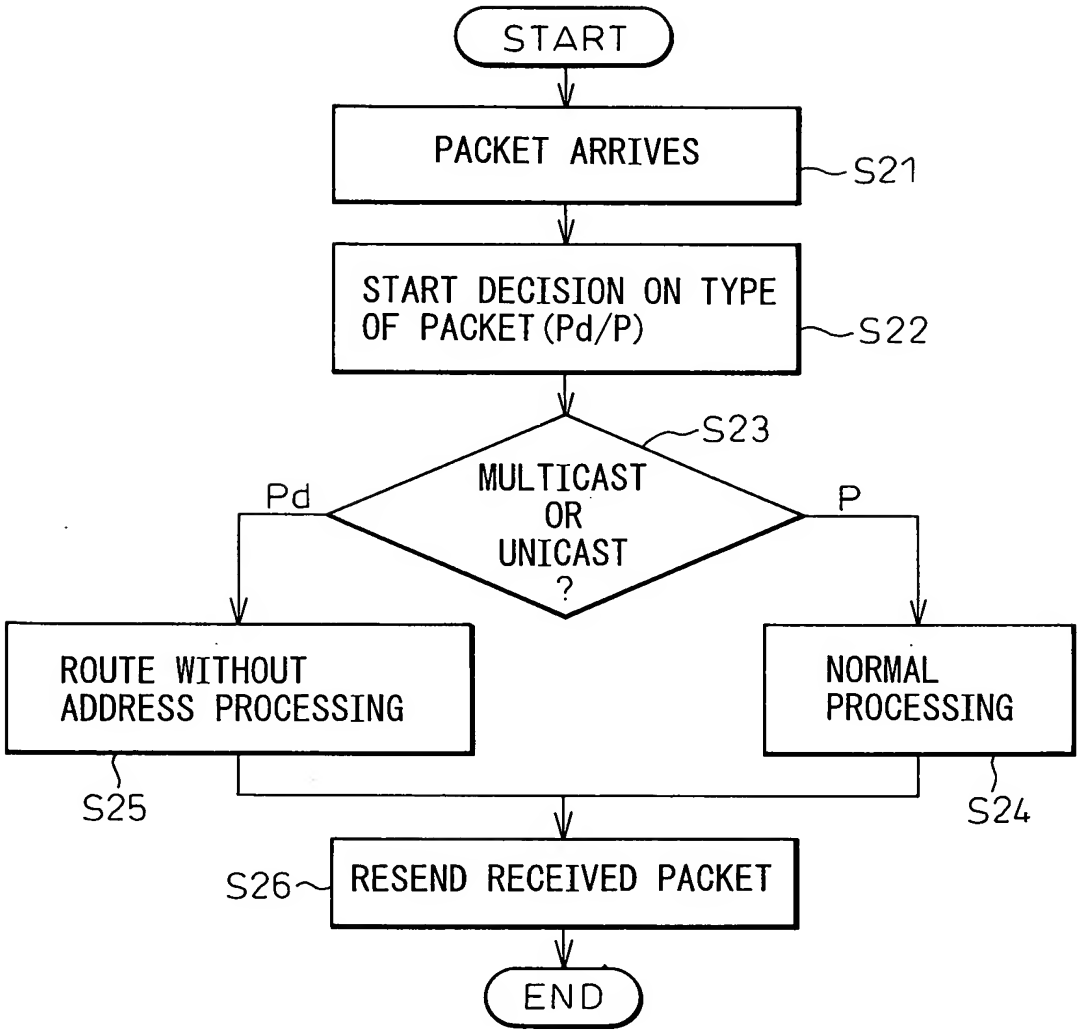

START
PACKET ARRIVES
S21
START DECISION ON TYPE OF PACKET (Pd/P)
S22
S23
MULTICAST OR UNICAST ?
Pd
P
ROUTE WITHOUT ADDRESS PROCESSING
NORMAL PROCESSING
S25
S24
S26
RESEND RECEIVED PACKET
END

FIG.15

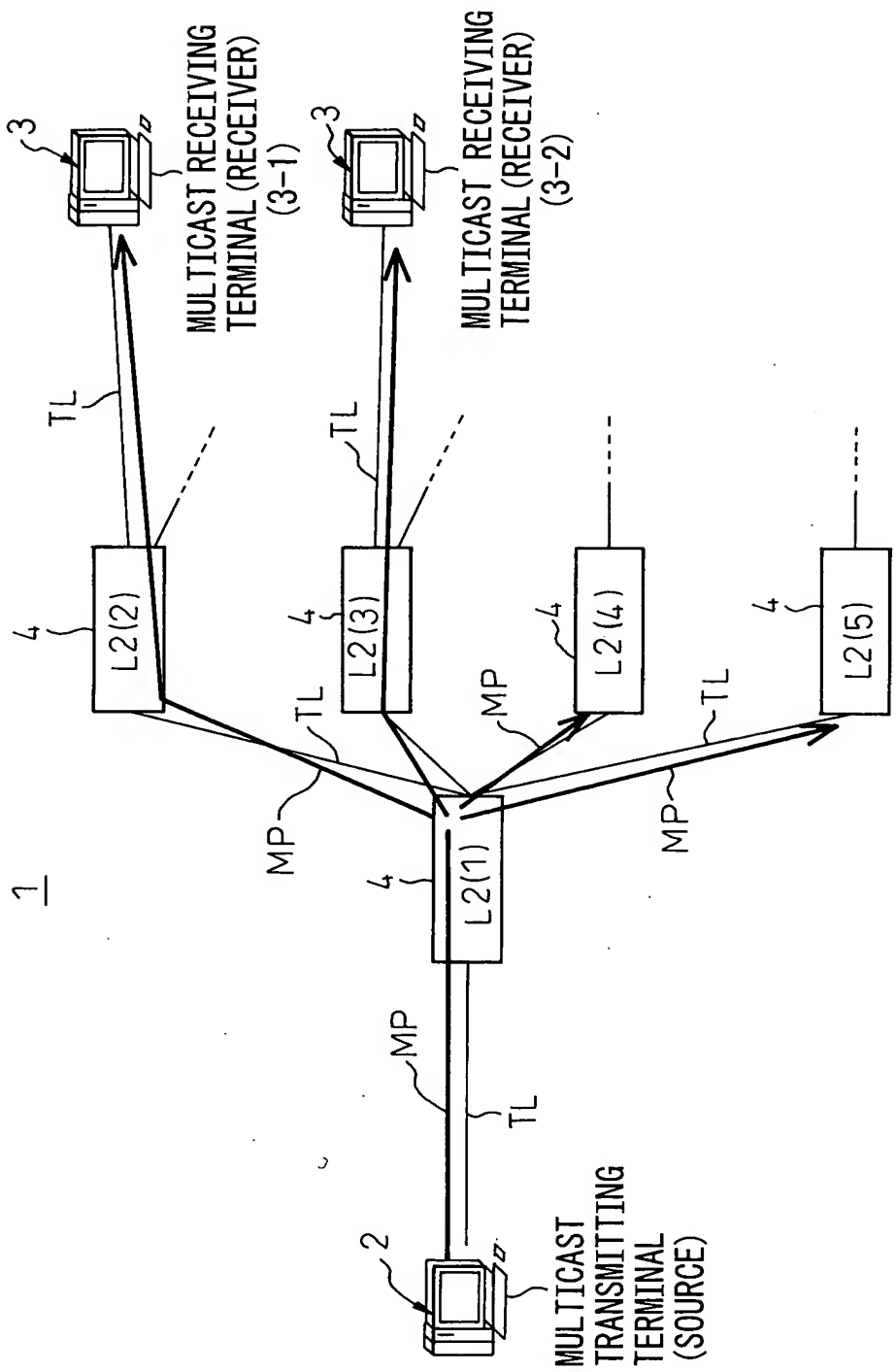

1
2
3
4
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
TL
MP
MULTICAST TRANSMITTING TERMINAL (SOURCE)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)

FIG.16

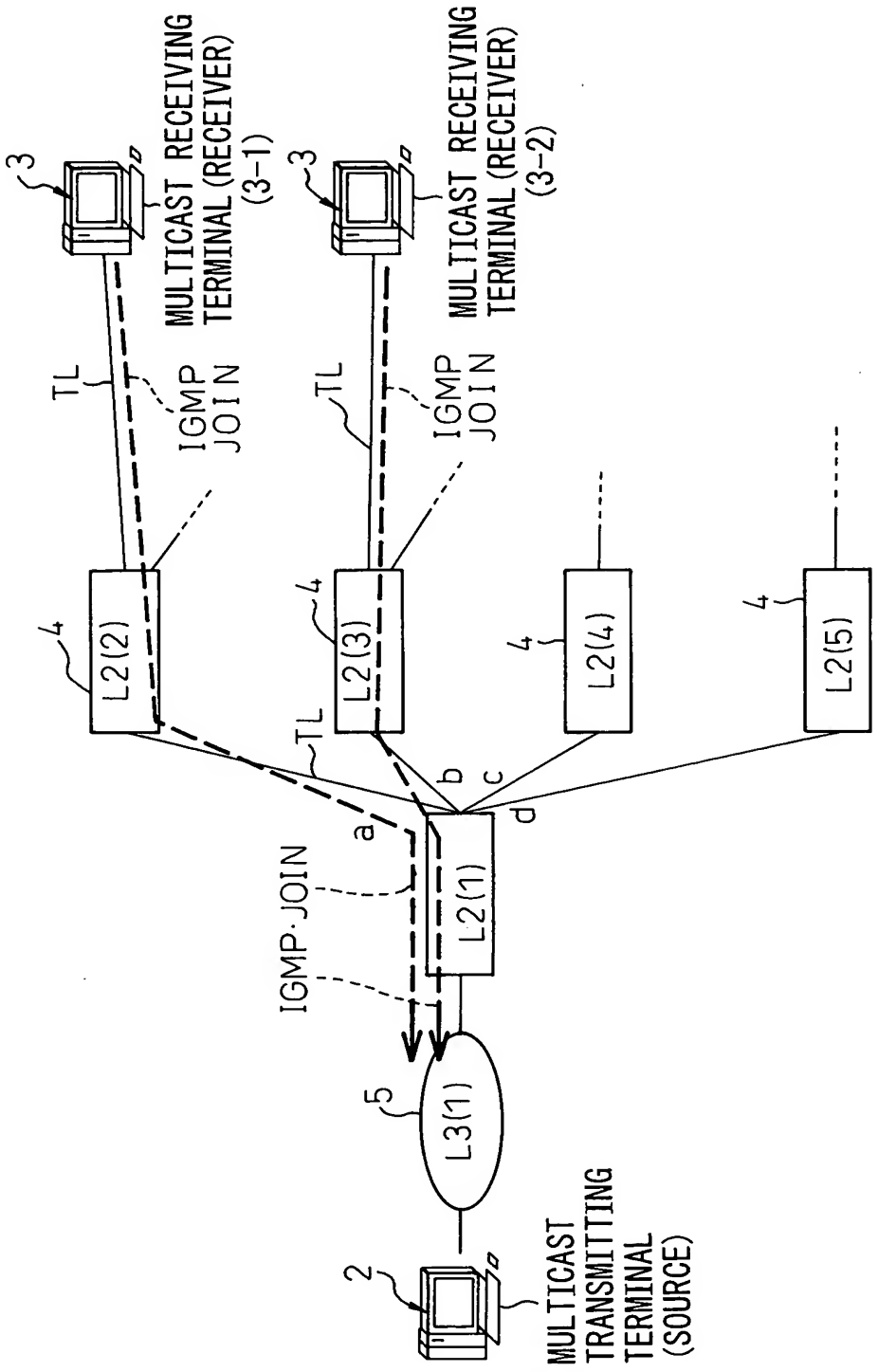
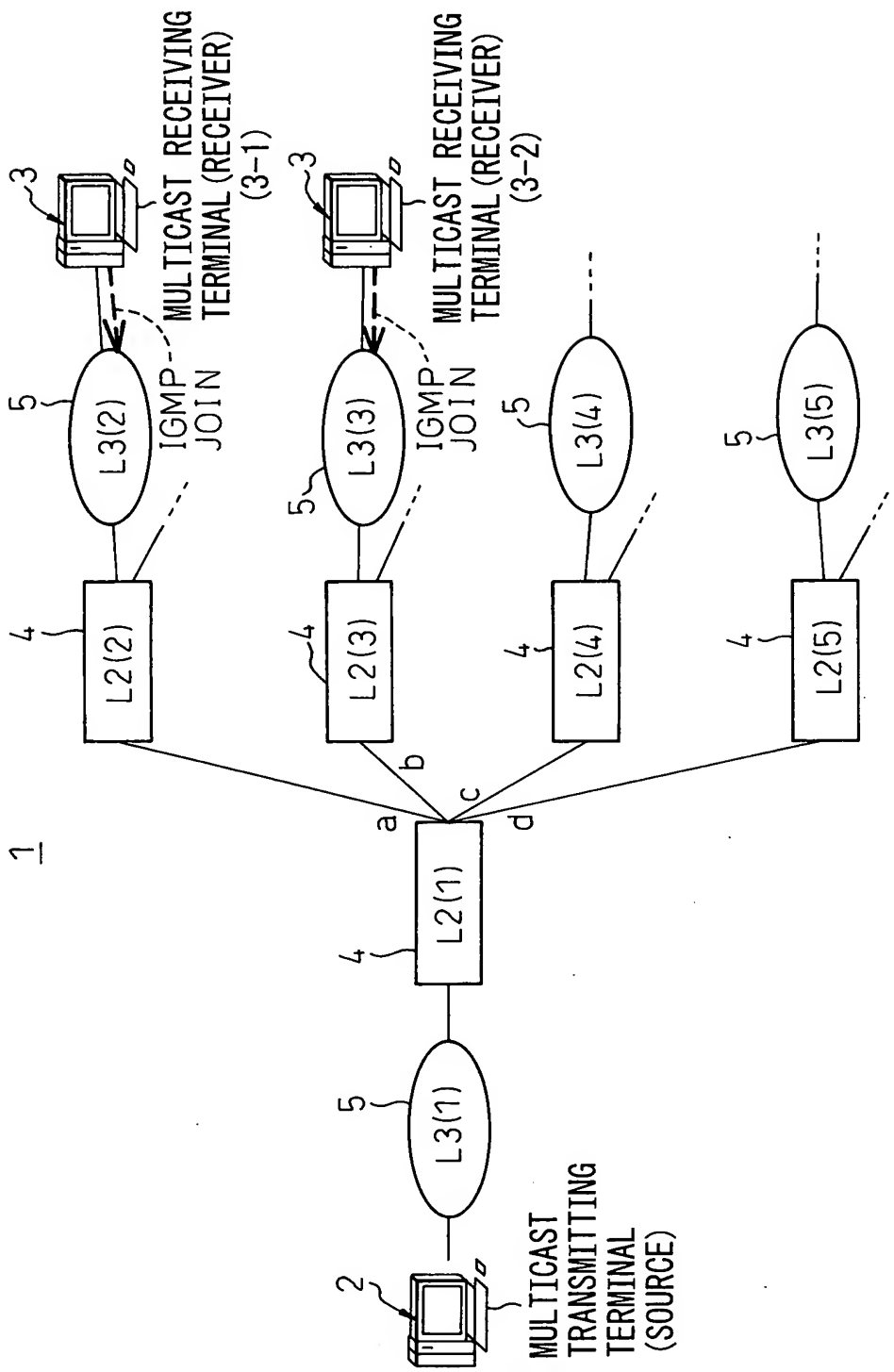

MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)
3
TL
IGMP JOIN
L2(2)
L2(3)
L2(4)
L2(5)
4
a
b
c
d
IGMP·JOIN
L2(1)
5
L3(1)
2
MULTICAST TRANSMITTING TERMINAL (SOURCE)

FIG.17


1
2
3
4
5
L2(1)
L2(2)
L2(3)
L2(4)
L2(5)
L3(1)
L3(2)
L3(3)
L3(4)
L3(5)
a
b
c
d
IGMP JOIN
IGMP JOIN
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-1)
MULTICAST RECEIVING TERMINAL (RECEIVER) (3-2)
MULTICAST TRANSMITTING TERMINAL (SOURCE)